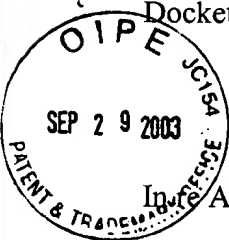


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AF 11765



## Infe Application of

Customer Number: 20277

Christy Mei-Chu WOO, et al.

Confirmation Number: 3860

Serial No.: 09/826,078

Group Art Unit: 1765

Filed: April 05, 2001

Examiner: DEO, Duy, Vu

For: PHYSICAL VAPOR DEPOSITION OF NICKEL

## TRANSMITTAL OF REPLY BRIEF

Mail Stop Reply Brief  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith in triplicate is Appellant(s) Appeal Brief in support of the Notice of Appeal filed July 29, 2003. Please charge any necessary fee to Deposit Account 500417.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

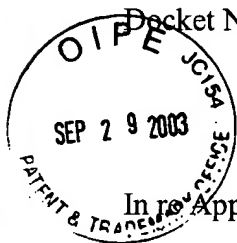
Respectfully submitted,

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**Date: September 29, 2003**



Docket No.: 52352-767

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

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REPLY BRIEF

Mail Stop Reply Brief  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is submitted in response to the Examiner's Answer of July 29, 2003.

This Reply Brief is being filed in response to the Examiner's Answer of July 29, 2003.

Appellants hereby respectfully submit the following.

An obviousness conclusion must be predicated upon factual inquiries mandated by the Court of Appeals for the Federal Circuit. *In re Lee*, 277 F.3d 1338, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002). A statement by the Examiner that something is of "common knowledge" must be based upon substantial evidence support of record. *In re Zurko*, 258 F.3d 1379, 59 USPQ2d 1693 (Fed. Cir. 2001).

In the Answer, the Examiner states, under section (11) *Response to Argument*:

"Referring to applicant's [Appellant's] argument that Wolf teaching of preheating the wafer doesn't suggest that the deposition chamber is continuously heated between the

removal of the first substrate and the introduction of the second substrate, first of all, it ***doesn't make any sense*** for one skilled in the art to preheat the substrate and then introduces it into a cool chamber where the substrate would be cooling down. Furthermore, as Wolf teaches in page 361 'such step coverage heating may be done in the sputter chamber during deposition,' therefore, it would be obvious for any skill in the art to keep the chamber heated between the removal of the first substrate and the introduction of the second substrate (there are always more than one wafers being processed at a time: page 2, line 11-15) so that the second substrate doesn't loose its T or have to be heated again in which time will be wasted and slow down the process and reducing the product yield. Second of all, ***it would be common sense*** for any skill in the art to keep the chamber heated in order to remain the continuity of the whole process because by cooling the chamber down and then heat it up again would wastes time. On the other hand, by keeping the chamber heated would save processing time from reheating the chamber and it would increase product yield." (Emphasis added)

Thus, the Examiner concedes that Wolf [et al.], like Gupta [et al.] (see Answer, top of page 3), fails to describe the deposition chamber is continuously heated between the removal of the first substrate and the introduction of the second substrate. Despite such lack of disclosure and because Wolf teaches preheating the wafer as well as heating the wafer during deposition, the Examiner states (his opinion) that it doesn't make any sense for one skill[ed] in the art to preheat the substrate and then introduce it into a cool chamber when the substrate would be cooling down and uses this assertion as motivation as to why it would have been obvious to keep the chamber heated between the removal of the first substrate and the introduction of the second substrate.

The Examiner's reasoning is fraught with legal error. Such a "pie in the sky" generalization "that it doesn't make any sense for one skill[ed] in the art to preheat the substrate and then introduce it into a cool chamber when the substrate would be cooling down" is not based upon evidence of record (See *In re Zurko*, *supra*), and does not satisfy the legal requirement for "clear and particular" showings of combinability in the prior art with a reasonable expectation of success. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 57 UPSQ2d 1161 (Fed. Cir. 2000); *Ecolochem Inc. v. Southern California Edison, Co.*, 227 F.3d 361, 56 USPQ2d 1065 (Fed. Cir. 2000); *In re Kotzab*, 217 F.3d 1365, 55 USPQ 1313

(Fed. Cir. 2000); *In re Dembizcak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999).

One issue which seems to escape the Examiner's attention is fact that the lack of disclosure in Wolf [et al.] and Gupta [et al.] of continuously heating the deposition chamber between the removal of the first substrate and the introduction of the second substrate is clear evidence of the non-obviousness of the present invention. More specifically, if such continuously heating the deposition chamber between the removal of the first substrate and the introduction of the second substrate is so "obvious", as suggested by the Examiner, why has the Examiner been unable to identify a specific location in a cited reference which discloses this feature? Clearly, the only disclosure of record of this feature is in Appellant's application, not Wolf [et al.] or Gupta [et al.]. However, Appellant's disclosure may not properly be relied upon to support the ultimate legal conclusion of obviousness under 35 U.S.C. § 103. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 227 1 USPQ2d 1593 (Fed. Cir. 1987).

It would seem that the Examiner considers this feature to be so simple and/or insignificant that it is *per se* obvious. However, it should be recognized that the fact that the prior art could be modified so as to result in the combination defined by the claims at bar would not have made the modification obvious unless the prior art suggests the desirability of the modification. *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986). Also, recognizing, after the fact, that a modification would provide an improvement or advantage, without suggestion thereof by the prior art, rather than dictating a conclusion of obviousness, is an indication of improper application of hindsight considerations. Simplicity and hindsight are not proper criteria for resolving obviousness. *In re Warner*, 379 F.2d 1011, 154, USPQ 173 (CCPA 1967).

The Examiner asserts that Appellant's statement that "it would reasonably be presumed that heating of the chamber ceases when the processing of a wafer is complete and the wafer is to be exited from the chamber, and that the heating of the chamber remains off until a new wafer enters whereupon,

the chamber is closed and heating, including preheating, begins anew” is assumptive and without support of evidence. However, the statement must be taken with the statement that “there is nothing in any of the applied prior art references which discloses or suggests any reason to provide this continuous heating of the deposition chamber while one substrate is removed and another is being introduced. Given the disclosures of the references, *it would reasonably be presumed that...*”

For some unknown reason, the Examiner completely forgets that he has been unable to identify any specific location in Wolf [et al.] and Gupta [et al.] that discloses continuously heating the deposition chamber between the removal of the first substrate and the introduction of the second substrate. It is Appellant’s position that, in view of the Examiner’s initial burden of establishing a *prima facie* cases of obviousness under 35 U.S.C. § 103, if a feature recited in a claim is not disclosed in a reference (or any other reference), it is reasonable to presume that the reference does not have this feature. Certainly, such position is “assumptive” since it is stated that “*it is reasonable to presume*”. However, such position is **not** without support of evidence, as *the burden is on the Examiner* to demonstrate where such feature is disclosed. The fact that the Examiner has been unable to identify a specific location in Wolf [et al.] or Gupta [et al.] that discloses the noted feature is evidence of the fact that the feature is not in the references.

The Examiner’s methodology of dealing with the missing feature is to claim that it doesn’t make any sense for one skill[ed] in the art to preheat the substrate and then introduce it into a cool chamber when the substrate would be cooling down as motivation, and use this claim as a basis why it would have been obvious to keep the chamber heated between the removal of the first substrate and the introduction of the second substrate. However, as noted above, the Examiner’s claim is not based upon evidence of record and does not satisfy the legal requirement for “clear and particular” showings of combinability in the prior art with a reasonable expectation of success. Given these facts, it is certainly

reasonable for Appellant to presume that in Wolf [et al.], "heating of the chamber ceases when the processing of a wafer is complete and the wafer is to be exited from the chamber, and that the heating of the chamber remains off until a new wafer enters whereupon, the chamber is closed and heating, including preheating, begins anew".

Finally, the Examiner cites *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971) for his position that "it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from applicant's disclosure, such reconstruction is proper". However, at the very least, it is clear from *In re Lee, supra*, and *In re Zurko, supra*, that any knowledge that the Examiner claims was within the level of ordinary skill at the time the claimed invention was made, must be established by substantial evidence of record, and not be based merely upon the opinion of the Examiner.

As noted above, the Examiner's generalization "that it doesn't make any sense for one skill[ed] in the art to preheat the substrate and then introduce it into a cool chamber when the substrate would be cooling down" is not based upon evidence of record. Therefore, the use of the generalization as a basis why "it would have been obvious to keep the chamber heated between the removal of the first substrate and the introduction of the second substrate" does not satisfy the legal requirement for "clear and particular" showings of combinability in the prior art with a reasonable expectation of success. As noted above also, the only disclosure of record of keeping the chamber heated between the removal of the first substrate and the introduction of the second substrate is in Appellant's application, not Wolf [et al.] or Gupta [et al.]. Therefore, the Examiner's reconstruction is improper as his judgment on obviousness includes knowledge gleaned only from Appellant's disclosure.

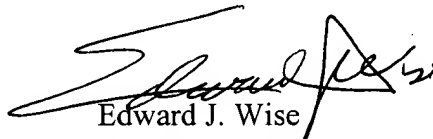
**Conclusion**

Appellant maintains that the Examiner did not discharge the initial burden of establishing a *prima facie* cases of obviousness under 35 U.S.C. § 103 and that giving due consideration to the non-obviousness indicium of record, one having ordinary skill in the art would not have found the claimed invention as a whole obvious within the meaning of 35 U.S.C. § 103. Appellant, therefore, respectfully submits that the imposed rejections of claims 4, 5, 7, 8 and 10-15 under 35 U.S.C. § 103 for obviousness are not factually or legally viable, and, hence, solicit reversal thereof.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this

Respectfully submitted,

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